a substrate holder configured to hold a substrate;

an electrolyte cell configured to receive the substrate in a processing position;

an actuator connected to the substrate holder, the actuator being configured to adjustably position the substrate relative to the electrolyte cell; and

a sensor configured to sense an electric current density across the seed layer.

5. (Amended) An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

a substrate holder configured to hold a substrate;

an electrolyte cell having a body portion and an overflow portion, the overflow portion defining an opening for receiving the substrate in a processing position; and

an actuator connected to the substrate holder, the actuator being configured to adjustably position the substrate relative to the body portion of the electrolyte cell.

6. (Amended) An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

a substrate holder configured to hold a substrate;

an electrolyte cell configured to receive the substrate in a processing position;

an actuator connected to the substrate holder, the actuator being configured to bow the substrate relative to the electrolyte cell.

7. (Cancelled) A method of controlling uniformity in a deposition depth of a metal film from the center of the seed layer on a substrate to the periphery of the seed layer on the substrate, the method comprising:

inserting a substrate having a seed layer into an electrolyte cell; and

adjusting the position of the seed layer within the electrolyte cell to provide a desired uniformity of the metal film deposition depth.

8. (Cancelled) The method of claim 7, wherein said adjusting the position comprises adjusting the vertical height of the substrate within the electrolyte cell.

9. (Cancelled) The method of claim 7, further comprising determining the uniformity in deposition depth of metal film deposited on the seed layer for a

substrate in a plurality of positions from the center of the substrate to the periphery of the substrate.

9 10. (Amended) A method of controlling uniformity in a deposition depth of a metal film from the center of a seed layer on a substrate to the periphery of the seed layer, the method comprising:

inserting a substrate having a seed layer into an electrolyte cell; and

bowing the substrate relative to the electrolyte cell.

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11. (Amended) The method of claim 10, wherein sensing the uniformity of the electric current density is performed after the substrate has been removed from the electrolyte cell.

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12. (Amended) A method for controlling uniformity of a deposition depth of a metal film from the center of a seed layer on a substrate to the periphery of the seed layer, the method comprising:

inserting a substrate having a seed layer into an electrolyte cell; and

adjusting the horizontal position of the substrate within the electrolyte cell.

13. (Cancelled) A method for electro-chemically depositing a metal film on a substrate having a metal seed layer, the method comprising:

disposing the substrate in an electrolyte cell that is configured to receive the substrate; and

adjustably positioning the substrate relative to the electrolyte cell.

14. (Cancelled) The method of claim 13, further comprising determining the uniformity of the deposition depth of metal film on the substrate along a radius from the center of the substrate to the periphery of the substrate.

15. (Cancelled) The method of claim 14, wherein the determining the uniformity of the deposition depth of the metal film includes measuring the thickness of the metal film.

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16. (Amended) A method for electro-chemically depositing a metal film on a substrate having a metal seed layer, the method comprising:

disposing a substrate in an electrolyte cell having a body portion and an overflow portion, the overflow portion defining an opening for receiving the substrate in a processing position; and

adjustably positioning the substrate relative to the body portion of the electrolyte cell.

14 13

A4 17. (Amended) The method of claim 16, wherein adjustably positioning comprises adjusting the vertical height of the substrate.

18. (Cancelled) An apparatus for electro-chemically depositing a metal film on a substrate having a metal seed layer, comprising:

a substrate holder;

an electrolyte cell; and

actuator means for adjustably positioning the position of the substrate holder relative to the electrolyte cell to provide a desired uniformity of metal film deposition depth.

19. (Cancelled) A method for controlling uniformity of deposition rate of a metal film on a substrate, the method comprising:

disposing the substrate in an electrolyte cell; and

adjustably positioning the substrate relative to the electrolyte cell to control said deposition rate.

20. (Cancelled) The method of claim 19, further comprising measuring the deposited metal film to determine the deposition rate of the metal film on the seed layer on the substrate.

21. (Cancelled) The method of claim 19, wherein the adjustably positioning comprises adjusting the vertical height of the substrate relative to the electrolyte cell.

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A5 22. (Amended) A method for controlling uniformity of deposition rate of a metal film on a substrate, the method comprising:

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disposing a substrate in an electrolyte cell; and

adjusting the lateral position of the substrate relative to the electrolyte cell to control the deposition rate.

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23. (Amended) A method for controlling uniformity of deposition rate of a metal film on a substrate, the method comprising:

disposing a substrate in an electrolyte cell; and

adjusting the curvature of the substrate relative to the electrolyte cell.

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24. (Amended) The method of claim 23, further comprising determining the uniformity of the deposition layer by measuring the thickness of the metal film.

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25. (Amended) An apparatus for electro-chemically depositing a metal film on a substrate having a metal seed layer, comprising:

a substrate holder for holding the substrate;

an electrolyte cell having a body portion and an overflow portion, the overflow portion defining an opening for receiving the substrate in a processing position;

an actuator connected to the substrate holder for displacing the substrate holder in a substantially vertical direction to adjust the position of the substrate relative to the body portion of the electrolyte cell; and

a metal deposition portion that provides for deposition of the metal film on the metal seed layer.

Please add the following new claims:

22-26. A method for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

disposing a substrate in an electrolyte cell having a body portion and an overflow portion, the substrate being disposed above an upper edge of the body portion;

varying a distance between the substrate and the upper edge of the body portion; and

contacting a seed layer disposed on the substrate with an electrolyte solution.

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27. The method of claim 26, wherein varying the distance comprises varying a vertical distance between the substrate and the upper edge of the body portion.

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28. The apparatus of claim 5, wherein the actuator is configured to position the substrate in a lateral direction relative to the electrolyte cell.

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29. The apparatus of claim 5, wherein the actuator is configured to bow the substrate so that the center of the substrate is closer to an anode disposed in the electrolyte cell than the periphery of the substrate.

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30. The apparatus of claim 5, wherein the actuator is configured to vary a vertical distance between the substrate and the body portion.

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31. The method of claim 10, wherein bowing the substrate comprises:

applying a downward force to the substrate at a position between the center of the substrate and the periphery of the substrate; and

applying an upward force to the substrate at the periphery of the substrate.

A6 = 24
32. An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

an electrolyte cell configured to receive a substrate in a processing position; and

a substrate holder having a thrust plate and a plurality of contact elements, the substrate holder being configured to hold the substrate between the thrust plate and the contact elements and to vary a cross-sectional shape of the substrate.

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33. The apparatus of claim 32, wherein the thrust plate is configured to apply a downward force.

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34. The apparatus of claim 32, wherein the contact elements are configured to apply an upward force.

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35. The apparatus of claim 32, wherein the thrust plate is configured to apply a downward force and the contact elements are configured to apply an upward force.

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36. The apparatus of claim 32, wherein the thrust plate has a diameter smaller than the contact elements.

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37. The apparatus of claim 32, wherein the cross-sectional shape of the substrate is such that a center of the substrate is lower than a periphery of the substrate.

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38. The apparatus of claim 37, wherein the electrolyte cell comprises an anode disposed therein, and wherein the cross-sectional shape of the substrate is such that the center of the substrate is closer to the anode than the periphery of the substrate during processing.

18 16
39. The method of claim 23, wherein adjusting the curvature of the substrate comprises bowing the substrate.

19 16
40. The method of claim 23, wherein adjusting the curvature of the substrate comprises adjusting the center of the substrate and periphery of the substrate so that the center of the substrate is not on the same plane as the periphery of the substrate.

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41. The method of claim 23, wherein adjusting the curvature of the substrate comprises:

applying a downward force at the center of the substrate; and

applying an upward force at the periphery of the substrate.

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42. The apparatus of claim 5, wherein the actuator is configured to adjust a vertical distance between the substrate and the body portion of the electrolyte cell.

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43. The apparatus of claim 5, wherein a diameter of the body portion is substantially the same as a diameter of the substrate.

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44. An apparatus for electro-chemically depositing a metal film on a seed layer disposed on a substrate, comprising:

a substrate holder configured to hold a substrate;